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EXAMINER

CHAO, MICHAEL W

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,626	Applicant(s) DRIES ET AL.	
	Examiner Michael Chao	Art Unit 2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☒ Claim(s) 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 29 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The sole additional limitation "network analyzer card" is already present in the depended upon claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7, 9, 11, 22, 24, 28-30, are rejected under 35 U.S.C. 102(b) as being anticipated by Pruthi et al. (US 2002/0105911).

Concerning claims 1, 9, Pruthi teaches:

A method of transferring data from a network to a host using a network analyzer card, the method comprising: ("data is received from the first communication line" Pruthi paragraph [0016] & [0085])

At the network analyzer, receiving a plurality of data frames from a network link;

Adding a descriptor to the, the descriptor including data about the frame; and
("An exemplary record having the index as a first field and the packet as a second field"
Pruthi paragraph [0039])

Transferring the data frame and their attached descriptor to a host memory. ("the
interface computer stores a set of packets in a memory of the host computer" Pruthi
paragraph [0085])

Regarding claims 2, 5, Pruthi teaches: wherein the descriptor includes a field
indicative of the length of the data frame to which it is attached. ("size of packet" Pruthi
paragraph [0046])

Regarding claim 4, Pruthi teaches: wherein the descriptor includes a field
indicative of the channel from which the data frame to which the descriptor is attached
was received. ("interface number" Pruthi paragraph [0046])

Regarding claim 3, Pruthi teaches: wherein the descriptor includes a field
indicative of the order in which the data frame to which the descriptor is attached was
received with respect to other received data frames. ("1,2,3," Pruthi paragraph [0046])

Regarding claim 7, Pruthi teaches: the data is transferred to a region of host
memory directly accessible to a host application. ("data stored in the memories may
later be retrieved for analysis or for one of the applications" Pruthi paragraph [0044])

Regarding claim 11, Pruthi teaches: an input buffer upstream with respect to the
descriptor adder, the input buffer being configured and arranged to receive and
temporarily store plural data frames from the network link. ("Short-term memory" Pruthi
paragraph [0044])

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Regarding claim 22, Pruthi teaches a timestamp in paragraph [0046].

Regarding claim 24, Pruthi teaches: wherein the receiver and the descriptor adder are implemented in hardware. (Pruthi paragraph [0033])

Regarding claims 28, 29, Pruthi teaches: a central processing unit; (“an exemplary network monitor is implemented with a host computer having an interface computer on a network interface card” Pruthi paragraph [0082]) and, A memory to receive and store data packets received from the network, the host being arranged such that the central processing unit is not interrupted when every data packet is received in the memory from the network analyzer card. (“In an exemplary embodiment, the interface computer stores a set of packets in a memory of the host computer by a direct memory access (DMA) operation and then interrupts the host computer to indicate the transfer of packets.” Pruthi paragraph [0085])

Regarding claim 30, Pruthi teaches: in which the network analyzer card is arranged and configured to transfer data packets to a region of the host memory directly accessible to a host application. (“data stored in the memories may later be retrieved for analysis or for one of the applications” Pruthi paragraph [0044])

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pruthi, in view of Ashton et al. (US 5,317,692).

Regarding claim 6, Pruthi does not explicitly disclose that pointers are stored in the host memory which are indicative of where corresponding stored. Ashton discloses such a pointer, "In the case of a read operation, the linked list of buffers is established by the CCU 114 and the CA 112 administers the transfer of all data in the list in accordance with the invention." (Ashton Column 5 line 45). A person of ordinary skill in the art would have modified the invention of Pruthi with the pointers of Ashton by chaining received packets. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the invention in order to transfer multiple data elements.

Claims 8, 10, 12, 14, 23, 26, 27, 31, 33-39, are rejected under 35 U.S.C. 103(a) as being unpatentable over Pruthi, in view of Ashton et al. (US 5,317,692), in view of Gagne et al. (U 5,303,347).

With respect to claims 8, 23, 26, 31, 35, 39, Pruthi teaches:

A method of transferring multi-channel data received from a network to a host using a network analyzer card, the network analyzer card comprising: a receiver for receiving plural data frames from a network link on a first channel and a receiver for receiving plural data frames from the network link on a second channel; (“first network interface . . . second network interface” Pruthi paragraph [0034]) a descriptor adder configured and arranged to add a descriptor to at least some of the data frames received on the first channel and a descriptor adder configured and arranged to add a descriptor to at least some of the data frames received on the second channel, the descriptors including data about the data frame to which it is attached, the method comprising: (“size of packet” Pruthi paragraph [0046]) receiving data from first and second channels on the receivers of the network analyzer card; and, (“An exemplary record having the index as a first field and the packet as a second field” Pruthi paragraph [0039])

Pruthi does not teach:
adding an indicator in the descriptor associated with received data frames indicative of the next channel on which a data frame was received, whereby when stored in an associated host memory said indicators can be used to merge data from said first and second channels in a desired order.

Ashton teaches storing an indicator to the next packet, “when an end-of-message is detected, the CA initializes a next message pointer in one of the buffers associated with the message just received” (Ashton column 3 line 25). A person of ordinary skill in the art would have modified the system of Pruthi with the pointers of Ashton by including

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the next message pointer of Ashton in the index field of Pruthi. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify Pruthi with the pointers in order to determine the order of the messages.

Further Pruthi in view of Ashton does not explicitly disclose a 'next channel' indicator.

Gagne discloses such a next channel indicator, "Ring identifiers 81c and 82c are fields which indicate which of receive rings 50, 50, and 70 contain the ring entry corresponding to the next sequentially received packet" (Gagne column 5 line 10). A person of ordinary skill in the art would have modified the combination of Pruthi in view of Ashton by including a 'next ring' entry in the index of Pruthi and having separate buffers for the individual input streams. Thereby allowing the multiple buffers to allow processing of "packets in the order in which they arrived." (Gagne column 9 line 66). It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the combination in order to allow processing of multiple packet flows in the order in which they were received.

Regarding claims 10, Pruthi teaches: wherein the descriptor includes a field indicative of the length of the data frame to which it is attached. ("size of packet" Pruthi paragraph [0046])

Regarding claim 12, Pruthi teaches a timestamp in paragraph [0046].

Regarding claim 14, Pruthi teaches a packet buffer. ("Short-term memory" Pruthi paragraph [0044])

Regarding claim 27, Pruthi in view of Ashton, in view of Gagne teaches: in which the indicator is an indicator of the next channel on which a data frame was received. (“Ring identifiers 81c and 82c are fields which indicate which of receive rings 50, 50, and 70 contain the ring entry corresponding to the next sequentially received packet” Gagne column 5 line 10)

Regarding claim 33, Pruthi teaches: when reading the descriptor of the first data packet, obtaining information about the channel from which the data was received by the host. (“interface number” Pruthi paragraph [0046])

Regarding claims 34, 36, 37, Pruthi in view of Ashton in view of Gagne teaches: reading a Next Channel Indicator bit stored in the descriptor and accessing a subsequent data packet in dependence on the next channel indicator bit. (“Ring identifiers 81c and 82c are fields which indicate which of receive rings 50, 50, and 70 contain the ring entry corresponding to the next sequentially received packet” Gagne column 5 line 10). While Pruthi in view of Ashton in view of Gagne does not explicitly say that ring identifiers are ‘bits’, a person of common knowledge in the art knows that addressing only requires a single bit to determine two different options, and two bits for up to four different options. In the case of two buffers only one bit is used to actually determine the difference between which ‘ring’ the next sequential packet would reside in. Therefore, even if the ‘Ring identifier’ 81x should be a field of larger than 1 byte in length, only one bit would be used for the combination above, where there exist only two input buffers.

Regarding claim 38, Pruthi in view of Ashton teaches: the location of data packets in the host memory is stored in an offset list containing a list of offsets used for navigation through the host memory. (See Ashton, front page)

Claim 32, is rejected under 35 U.S.C. 103(a) as being unpatentable over Pruthi, in view of Ashton, in view of Gagne, in view of Grover et al. (US 5,497,404).

Regarding claim 32, Pruthi in view of Ashton in view of Gagne does not explicitly teach using the length of the first data packet to locate a subsequent data packet in the memory. Grover discloses such a feature, “A subsequent data packet position indicated by the next data packet position indicator is compared to a subsequent data packet position indicated by current data packet length information to determine if a correspondence exists. If so, the current data packet length information is used as a pointer to the subsequent data packet.” (Grover column 4 line 5). A person of ordinary skill would have modified the invention of Ashton, in view of Gagne with the length pointer of Grover by conditionally using packet length as the next packet pointer. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the combination in order to save memory space when redundant data is present.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pruthi, Pruthi, in view of Ashton, in view of Gagne, in view of ‘Tcl Clock’.

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With regard to claim 13, Pruthi in view of Ashton in view of Gagne does not disclose that his timestamp can be a variable format. Tcl Clock discloses variable timestamp formats. A person of ordinary skill in the art would have modified the combination with variable timestamps. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify in order to account for varying desired time resolutions.

Claims 15, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pruthi, in view of Ashton, in view of Gagne in view of Katzman et al. (US 4,228,496).

Regarding claim 15, Pruthi in view of Ashton, in view of Gagne does not explicitly disclose an input and output buffer. Katzman discloses such input and output buffers, See e.g. Figure 22. A person of ordinary skill in art would have modified the invention of Pruthi in view of Ashton in view of Gagne with the IO buffers of Katzman by including buffers on the devices memory. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to include IO buffers on the interfaces memory in order to synchronize data transfers over internal or external busses.

Regarding claim 16, Pruthi, in view of Ashton, in view of Gagne in view of Katzman teaches transferring data to the output buffer. ("The output of the stress counter is decoded, and any one of the decoded values may be used to specify that the buffer is at a threshold depth" Katzman column 47 line 27).

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Claims 17, 18, 19, are rejected under 35 U.S.C. 103(a) as being unpatentable over Pruthi, in view of Ashton, in view of Gagne in view of Katzman, in view of Kim et al. (US 5,859,846).

Regarding claim 17, Pruthi, in view of Ashton, in view of Gagne in view of Katzman teaches: configured and arranged such that in use data is transferred from the packet buffer to the packet buffer output buffer when the following conditions are satisfied:

(a) packet buffer is determined to be not empty

AND

(b) (input buffer is determined to be not full) OR (packet buffer is determined to be full)

("The output of the stress counter is decoded, and any one of the decoded values may be used to specify that the buffer is at a threshold depth" Katzman column 47 line 27).

Pruthi, in view of Ashton, in view of Gagne, in view of Katzman does not explicitly disclose that the transfer is blocked on an output buffer determination. Kim discloses such a feature. "output buffer full state flag C10 to the multiplexing controller 26 to temporarily stop the multiplexing operation" (Kim column 13 line 28). A person of ordinary skill in the art would have modified Pruthi in view of Katzman with Kim by providing an indicator signaling when the output buffer was full. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to halt transmission of data when the buffer is full to prevent overwriting of stored data.

Regarding claim 18, Pruthi, in view of Ashton, in view of Gagne, in view of Katzman teaches: whether or not the packet buffer is determined to be full or not full is

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determined by an upper threshold ("The output of the stress counter is decoded, and any one of the decoded values may be used to specify that the buffer is at a threshold depth" Katzman column 47 line 27) and a lower threshold, respectively. ("Thus, the STI signal is asserted when the buffer 189 reaches a condition of minimal stress" Katzman column 47 line 45)

Regarding claim 19, Pruthi, in view of Ashton, in view of Gagne, in view of Katzman teaches: in which the upper and lower thresholds are variable to control data input to and output from the packet buffer. ("wire jumpers are used to select one of sixteen possible stress values" Katzman column 47 line 29). Pruthi in view of Katzman in view of Kim does not disclose that the lower threshold is adjustable. However, since the upper threshold is adjustable, also making the lower threshold adjustable is obvious. It would therefore be obvious to one of ordinary skill in the art to make the simple substitution of the nonadjustable lower threshold to an adjustable lower threshold, in a manner similar to the upper threshold. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to make the lower threshold adjustable in order to specify the nature of the burst transfer.

Claims 20, 21, are rejected under 35 U.S.C. 103(a) as being unpatentable over Pruthi, in view of Ashton, in view of Gagne, in view of Katzman, in view of Eckberg et al. (US 4,769,810).

Regarding claim 20, Pruthi, in view of Ashton, in view of Gagne, in view of Katzman does not teach: a bandwidth controller, arranged and configured to force a

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received data frame to be dropped when one or more criteria are satisfied. Eckberg teaches such a limitation, as seen on Figure 7. A person of ordinary skill in the art would have modified Pruthi, in view of Ashton, in view of Gagne, in view of Katzman with the congestion control of Eckberg by providing the logic of Eckberg to handle an overburdened system. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the combination to efficiently handle congestion on the system.

Regarding claim 21, Pruthi teaches a controller implemented in hardware. (Pruthi paragraph [0033])

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pruthi, in view of Dunlop et al. (US 6,721,872).

Regarding claim 25, Pruthi does not teach: a network analyzer card implemented in an integrated circuit or a Field Programmable Gate Array. Dunlop discloses a network interface implemented in an FPGA. A person of ordinary skill would have modified Pruthi with Dunlop by using an FPGA to design the network analyzer. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify Pruthi with an FPGA in order to accommodate multiple protocol types.

Claims 40, 42-46, are rejected under 35 U.S.C. 103(a) as being unpatentable over Pruthi, in view of Eckberg et al. (US 4,769,810).

Regarding claim 40, Pruthi teaches: A host for connection to network, the host

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comprising a network analyzer card, a memory and a central processing unit, wherein the network analyzer card is arranged and configured to receive data frames from the network (“data is received from the first communication line” Pruthi paragraph [0016] & [0085]).

Pruthi does not teach: a hardware component configured to cause a received frame to be dropped in dependence on the amount of data stored in the host memory and/or a memory provided on the network analyzer card.

Eckberg teaches such an element in Figure 7.

A person of ordinary skill in the art would have modified Pruthi with the congestion control of Eckberg by providing the logic of Eckberg to handle an overburdened system. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the combination to efficiently handle congestion on the system.

Regarding claim 42, Pruthi teaches: in which the network analyzer card is arranged and configured to add a timestamp to received data frames. (Pruthi paragraph [0046])

Regarding claim 43, Pruthi teaches: in which the network analyzer card is arranged and configured to transfer data packets to an area of the host memory directly accessible to an application running on the host. (“data stored in the memories may later be retrieved for analysis or for one of the applications” Pruthi paragraph [0044]).

Regarding claim 44, Pruthi teaches: in which the network analyzer card is arranged and configured to transfer data packets to the host memory, where the

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number of data packets transferred in a single data transfer operation is variable. ("In an exemplary embodiment, the interface computer stores a set of packets in a memory of the host computer by a direct memory access (DMA) operation and then interrupts the host computer to indicate the transfer of packets." Pruthi paragraph [0085])

Regarding claim 45, Pruthi teaches: in which the host central processing unit is interrupted due to receipt of data packets in the host memory when a sufficient number of data packets to fill a section of the host memory has been received ("In an exemplary embodiment, the interface computer stores a set of packets in a memory of the host computer by a direct memory access (DMA) operation and then interrupts the host computer to indicate the transfer of packets." Pruthi paragraph [0085]) or if not further packets have been received in the host memory in a determined time period.

Regarding claim 46, Pruthi teaches: In a host for connection to a network, the host comprising a network analyzer card for receiving data frames from the network, the network analyzer card being arranged and configured to add a descriptor to received data frames containing data about the data frame to which it is added for use in processing of the data frame, a host memory and a central processing unit associated with the host, the provision of one or more of the following features: ("An exemplary record having the index as a first field and the packet as a second field" Pruthi paragraph [0039])

(b) the descriptor including a hardware-generated indicator for use in determination of the order or receipt of a data frame with respect to other received data frames; ("1,2,3," Pruthi paragraph [0046])

(c) the network analyser card being arranged and configured to add a timestamp to received data frames; (Pruthi paragraph [0046])

(d) the network analyzer card being arranged to transfer data packets to an area of the host memory directly accessible to an application running on the host; (“data stored in the memories may later be retrieved for analysis or for one of the applications” Pruthi paragraph [0044])

(e) the network analyzer card being arranged and configured to transfer data packets to the host memory, wherein the number of data packets transferred in a single data transfer operation is variable; and, (“In an exemplary embodiment, the interface computer stores a set of packets in a memory of the host computer by a direct memory access (DMA) operation and then interrupts the host computer to indicate the transfer of packets.” Pruthi paragraph [0085])

(f) the host central processing unit being interrupted due to receipt of data packets in the host memory when a sufficient number of data packets to fill a section (“In an exemplary embodiment, the interface computer stores a set of packets in a memory of the host computer by a direct memory access (DMA) operation and then interrupts the host computer to indicate the transfer of packets.” Pruthi paragraph [0085]) of the host memory has been received or if no further packets have been received in the host memory in a determined time period.

Pruthi does not explicitly disclose: (a) the network analyzer card comprising a hardware component configured to cause a received frame to be dropped in

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accordance with criteria relating to the amount of data stored in the host memory and/or a memory provided on the network analyser card;

Eckberg teaches such an element in Figure 7.

A person of ordinary skill in the art would have modified Pruthi with the congestion control of Eckberg by providing the logic of Eckberg to handle an overburdened system. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the combination to efficiently handle congestion on the system.

Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pruthi, in view of Eckberg, in view of Ashton et al. (US 5,317,692).

Regarding claim 41, Pruthi in view of Eckberg teaches: wherein the network analyzer card is arranged and configured to add a descriptor to received data frames. Pruthi in view of Eckberg does not teach: the descriptor including a hardware-generated indicator for use in determination of the order of receipt of a data frame with respect to other received data frames. Ashton teaches such a reference, "when an end-of-message is detected, the CA initializes a next message pointer in one of the buffers associated with the message just received" (Ashton column 3 line 25). A person of ordinary skill in the art would have modified the system of Pruthi in view of Eckberg with the pointers of Ashton by including the next message pointer of Ashton in the index field of Pruthi. It would have been obvious at the time the invention was made to a person of

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ordinary skill in the art to modify the combination with the pointers in order to determine the order of the messages.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Chao whose telephone number is (571)270-5657. The examiner can normally be reached on 8-4 Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Lee can be reached on (571)272-3967. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. C./
Examiner, Art Unit 2442

/Philip C Lee/
Acting Supervisory Patent
Examiner, Art Unit 2442